Title (en)
Circuit for injecting test signals in an amplifier circuit

Title (de)
Schaltungsanordnung zur Einspeisung von Testsignalen in eine Verstärkungsschaltung

Title (fr)
Circuit d'alimentation des signaux de test dans un circuit d'amplification

Publication
**EP 1331491 A3 20041201 (DE)**

Application
**EP 02023765 A 20021024**

Priority
DE 10203562 A 20020129

Abstract (en)
[origin: DE10203562C1] A low resistance signal source (20) generates test signals. Two signal lines (21,22) are connected at high resistance to one of the two inputs of respective charge amplifiers (13,14), the inputs being connected to the hydrophone (10). One signal line carries the test signals, while the other carries test signals with a 180 degree phase shift. An electronic switch (29,30) with an attenuator (22,34) on its output is arranged in each signal line.

IPC 1-7 (main, further and additional classification)
**G01S 7/526**; G01S 15/04; G01S 15/06

IPC 8 full level (invention and additional information)
**G01S 7/52** (2006.01); **G01S 7/526** (2006.01)

CPC (invention and additional information)
**G01S 7/52004** (2013.01); **G01S 7/526** (2013.01)

Citation (search report)
- [X] US 6046632 A 20000404 - STRAW TIMOTHY B [US]
- [Y] US 5477504 A 19951219 - HAGERTY JAMES D [US]
- [Y] US 4689578 A 19870825 - SPYCHALSKI STEPHEN E [US]
- [Y] US 4855685 A 19890808 - HOCHSCHILD JAMES R [US]
- [A] US 4972381 A 19901120 - MITCHELL BRUCE C [MG], et al

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

EPO simple patent family
DE 10203562 C1 20030618; AU 2003200196 A1 20030814; AU 2003200196 B2 20070823; DE 50211286 D1 20080110; EP 1331491 A2 20030730; EP 1331491 A3 20041201; EP 1331491 B1 20071128

INPADOC legal status

**2018-01-31** [PGFP DE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DE
- Payment date : 20171019
- Year of fee payment : 16

**2013-09-23** [REG DE R082] CHANGE OF REPRESENTATIVE
- Document : DE 50211286

**2013-08-30** [PG25 FR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : FR
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20121031

**2013-08-30** [PG25 NL] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : NL
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20130501

**2013-07-31** [PG25 GB] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : GB
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20121024

**2013-07-26** [REG FR ST] NOTIFICATION OF LAPSE
- Effective date : 20130628

**2013-06-26** [GBPC] GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE
- Effective date : 20121024

**2013-05-15** [REG NL V1] LAPSED BECAUSE OF NON-PAYMENT OF THE ANNUAL FEE

- Effective date : 20130501

**2012-01-31** [PGFP FR] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : FR
- Payment date : 20111103
- Year of fee payment : 10

**2012-01-31** [PGFP NL] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : NL
- Payment date : 20111025
- Year of fee payment : 10

**2011-03-31** [PGFP GB] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : GB
- Payment date : 20101021
- Year of fee payment : 9

**2011-02-28** [PG25 IT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : IT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081031

**2010-08-31** [PG25 TR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : TR
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2010-07-30** [PG25 LU] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : LU
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081024

**2010-01-29** [PG25 AT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : AT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081024

**2009-10-30** [PG25 CH] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CH
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081031

**2009-10-30** [PG25 LI] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : LI
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081031

**2009-09-30** [PG25 BE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : BE
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081031

**2009-07-31** [PG25 CY] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CY
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2009-05-29** [PG25 MC] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : MC
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20081031

**2009-05-29** [REG CH PL] PATENT CEASED

**2009-04-30** [BERE] BE: LAPSED
- Owner name : ATLAS ELEKTRONIK G.M.B.H.
- Effective date : 20081031

**2009-04-30** [PG25 EE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : EE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2009-01-30** [PG25 GR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : GR
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20080229

**2008-11-05** [26N] NO OPPOSITION FILED
- Effective date : 20080829

**2008-10-31** [PG25 IE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : IE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2008-10-01** [REG IE FD4D] EUROPEAN PATENTS DESIGNATING IRELAND TREATED AS ALWAYS HAVING BEEN VOID

**2008-09-30** [PG25 PT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : PT
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20080428

**2008-08-29** [PG25 SK] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : SK
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2008-07-31** [PG25 CZ] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CZ
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2008-07-31** [PG25 DK] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : DK
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2008-07-18** [ET] FR: TRANSLATION FILED

**2008-05-30** [PG25 BG] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : BG
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20080228

**2008-05-30** [PG25 FI] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : FI
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20071128

**2008-04-30** [PG25 ES] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : ES
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20080311

**2008-04-30** [PG25 SE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : SE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20080228

**2008-02-27** [GBT] GB: TRANSLATION OF EP PATENT FILED (GB SECTION 77(6)(A)/1977)
- Effective date : 20080206

**2008-01-10** [REF] CORRESPONDS TO:
- Document : DE 50211286 P 20080110

**2007-12-31** [REG CH EP] ENTRY IN THE NATIONAL PHASE

**2007-12-21** [REG IE FG4D] EUROPEAN PATENTS GRANTED DESIGNATING IRELAND
- Free text : LANGUAGE OF EP DOCUMENT: GERMAN

**2007-11-28** [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : B1
- Designated State(s) : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

**2005-08-24** [AKX] PAYMENT OF DESIGNATION FEES
- Designated State(s) : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

**2005-08-17** [17Q] FIRST EXAMINATION REPORT
- Effective date : 20050701

**2005-06-08** [17P] REQUEST FOR EXAMINATION FILED
- Effective date : 20050407

**2004-12-01** [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A3
- Designated State(s) : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

**2004-12-01** [AX] REQUEST FOR EXTENSION OF THE EUROPEAN PATENT TO:
- Countries : AL LT LV MK RO SI

**2004-12-01** [RIC1] CLASSIFICATION (CORRECTION)
- IPC : 7G 01S 7/526 A

**2004-12-01** [RIC1] CLASSIFICATION (CORRECTION)
- IPC : 7G 01S 15/04 B

**2004-12-01** [RIC1] CLASSIFICATION (CORRECTION)
- IPC : 7G 01S 15/06 B

**2003-10-29** [RAP1] TRANSFER OF RIGHTS OF AN APPLICATION
- Owner name : ATLAS ELEKTRONIK GMBH

**2003-07-30** [AK] DESIGNATED CONTRACTING STATES:
- Designated State(s) : AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LU MC NL PT SE SK TR

**2003-07-30** [AX] REQUEST FOR EXTENSION OF THE EUROPEAN PATENT TO:
- Countries : AL LT LV MK RO SI